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State of California

Memorandum

To : Four Pumps Program and Project Staff

Date : September 19, 1995

From : **Department of Fish and Game**

Subject : Central Valley Habitat Enhancement Projects and Mitigation Credits Attributed Towards the Four Pumps Agreement.

On December 30, 1986, the Directors of the Departments of Fish and Game (DFG) and Water Resources (DWR) entered into a long-term agreement to improve Delta fish populations by offsetting direct losses of fish at the Harvey O. Banks Delta Pumping Plant. Direct losses were identified as those losses which occur from the time fish are drawn into Clifton Court Forebay until the surviving fish are returned to the Delta and include such things as enhanced predation, poor screening efficiency, and handling losses during the salvage process.

This agreement, known as the Four Pumps Agreement, was seen as one of several steps needed to offset adverse fishery impacts of the State Water Project (SWP) and specifically identified mitigation for striped bass, chinook salmon, and steelhead trout with the understanding that losses of other fish species would also be mitigated once impacts were identified and appropriate mitigation measures found. The mitigation program set in place by the Four Pumps Agreement gave priority to habitat restoration with preference given to measures in the San Joaquin River system. The two Departments have been guided in their selection of mitigation measures by an advisory committee which consists of interest groups concerned with fish resources affected by the SWP and included representatives of commercial and sport fishing organizations and SWP contractors.

The Four Pumps Agreement consisted of two separate funding processes. The first process, the Annual Account, was set up to fund projects which would compensate for annual fish losses at the pumps and a second process, the $15 Million Account, was to fund mitigation for past fish losses and required no statistical estimates of cost-benefit value. The funds in this latter account were fully committed in December 1994. The agreement also set up a procedure to calculate direct losses on an annual basis and required DWR to pay for mitigation projects which would compensate or offset these losses. These mitigation projects are funded from the Annual Account and require an annual calculation to determine "fish credit compensation". Since 1986, the DWR Four Pumps Agreement has provided funding to implement salmon spawning gravel restoration, installation of fish screens, hatchery improvements, and expanded fish production (hatchery fish). It also has

provided for alternative sources of water to benefit fish passage and supported additional law enforcement. At present, the only new projects to be considered through the Four Pumps Agreement are those enhancement projects which will provide fish credits towards reduction of the annual direct fish loss account. These projects must be cost effective and proposals must estimate "favorable" cost per fish benefit credits.

A related agreement was entered into with the U.S. Department of Interior - Bureau of Reclamation (USBR) on July 17, 1992 (Tracy Agreement). When the Tracy Pumping Plant (TPP) was constructed in the 1950's to supply the USBR Central Valley Project, the Tracy Fish Collection Facility (TFCF) was constructed and operated to divert and salvage fish that would be otherwise entrained in the Delta-Mendota Canal. The expected salvage efficiency of greater than 90 percent has never been achieved and the USBR has agreed to correct this problem. As with the Four Pumps Agreement, the USBR agreed to implement measures to reduce to the extent feasible and offset or replace remaining direct losses of chinook salmon and striped bass in the Delta caused by the diversion of water at the TPP. Originally, this agreement intended to provide annual funds totaling $6.51 million during Federal fiscal year 1993 through 1997 to mitigate for direct fish losses. The Tracy Agreement was recently (May 15, 1995) modified to authorize a more realistic funding schedule which allows for approximately $500,000 annually through September 30, 1997 (totaling $1,551,400). This agreement is most closely related to the Four Pumps $15 Million Account which did not include strict project cost-benefit funding criteria and did not require the need for mitigation credits.

Both the Four Pumps Agreement and the Tracy Agreement included provisions to allow for measures to offset other fishery impacts not specifically identified at the time consent to the agreements. These provisions, known as *Article VII* of the Four Pumps Agreement and *Article V* of the Tracy Agreement, instructed parties to the agreements to undertake discussions to developing ways to offset the adverse fishery impacts not covered directly within the agreements. These discussions were to agree upon identifications of fish species of concern, methods of calculating direct losses and methods of mitigation. With regard to the Four Pumps Agreement, nine years of discussions have achieved little progress towards mitigating for water project losses to other species of concern such as sturgeon and American shad.

ISSUES OF CONCERN

The Four Pumps Agreement was designed to remain in place indefinitely and for the past nine years this "experimental" mitigation process has implemented a wide variety of actions. During that time, the Four Pumps Agreement has supported several noteworthy anadromous fishery resource protection measures such as the

Mill Creek Water Exchange Project, the Grizzly Island Fish Screen, and the annual San Joaquin Temporary Fish Barrier activity. Recently several questions have been raised from within the DFG and DWR as well as from the external academic and private sector interests regarding the success of the Four Pumps projects and process. Some of those questions and issues which have been raised are as follows:

1) Is it possible to quantify the success of past projects, especially spawning habitat restoration efforts? The Department has had a few years to evaluate the results of early enhancement efforts funded by this agreement. These evaluations and observations, even if they are subjective, should be discussed before the agreement is continued to be implemented.

2) What are the pre- and post-project monitoring programs associated with past and future Four Pumps and other enhancement projects and how can they be funded? Such programs are vital to render any sound judgement as to project success or failure. Although, in the past, enhancement/restoration projects have rarely had the opportunity to adequately monitor project success, Four Pumps Annual Account projects were required to have some monitoring to determine annual fish loss credit. Is there a better approach than calculating fish loss credits (ie. flat rates based on amount of water diverted)? Should a project's success or failure be based on the project's ability to satisfy such cost-benefit goals?

3) What sort of environmental design criteria should be incorporated into enhancement project planning? Concern has been expressed that enhancement projects should be designed to comply with the same expectations as those for private commercial operations. Others disagree. Although standards should be equitable, they could hinder environmental repair efforts for much needed projects which have available only marginal funding. What should be the DFG policy regarding habitat enhancement construction criteria? Should there be a difference between required and non-required mitigation efforts? Are Four Pumps activities "required mitigation"?

4) Is the project selection process adequate? How can this process be coordinated with other restoration processes (ie. Tracy, CVPIA, Category III, etc.). Past Four Pumps enhancement projects were often identified based on marginal survey information and professional judgement. Although such subjective judgments may not be desired, many times such decisions are forced due to pressure to expedite

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project proposals. In the absence of adequate pre-project baseline surveys and post-project monitoring efforts, how should the Department address such demands in the future?

5) Four Pumps enhancement projects funded from the Annual Account must provide fish credits which satisfy the agreed upon cost per benefit ratio. Is this fish credit methodology and the statistical calculations associated with the process potentially a problem for the Department?

6) It is recognized by some individuals familiar with the Four Pumps projects that there is a significant discrepancy between projected cost/benefit fish credit estimates and annual true credits received as determined by actual chinook salmon usage. Originally such discrepancies were expected due to drought and severely depressed fish populations. Is this explanation still adequate? On the other hand, concern has been expressed that the present credit methodology does not always adjust to account for normal fish population usage. Should Four Pumps revisit the statistical process and adjust the calculation methodology?

7) Should the DFG seek to renegotiate the existing Four Pumps Agreement? If so, why and what should we seek to gain?

This is only a partial list of questions regarding the Four Pumps process specifically, and the DFG habitat restoration process in general. We believe it is time to meet and discuss these issues. Although many of these concerns may not have immediate resolution, much can be gained by discussion of the needs and developing recommendations regarding the Department's approach to existing and future habitat enhancement agreements and processes.

I would suggest a meeting to be held in Sacramento at the Resources Building 12th Floor Conference Room, on October 24, 1995 at 1:30 PM. Please contact Fred Jurick as soon as possible regarding the suggested meeting scheduling. He can be reached by telephone at (916) 657-4226 or CALNET 8-437-4226.

Terry J. Mills

for Dr. Perry Herrgesell
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